

WEST Search History

ATE: Friday, May 30, 2003

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,PGPB,JPAB,EPAB,TDBD; PLUR=YES; OP=OR</i>			
L31	l27 or l28 or l29 or l30	340	L31
L30	5305947[uref]	1	L30
L29	5481136[uref]	10	L29
L28	l24 not L27	190	L28
L27	l26 or l22	141	L27
L26	L25 not l22	3	L26
L25	l18 and L24	48	L25
L24	((molybdenum or mo) adj1 (powder or particle)) and (matrix or void or impregnated or compact or composite) and (mpa or void or impregnated or psi or "press-form" or "press-formed" or pressure) and ((copper or cu) same (molybdenum or mo))	319	L24
L23	((molybdenum or mo) adj1 (powder or particle)) and (matrix or void or impregnated or compact or composite) and (mpa or psi or "press-form" or "press-formed" or pressure) and ((copper or cu) same (molybdenum or mo))	296	L23
L22	l21 or l20	138	L22
L21	l19 not L20	14	L21
L20	l11 or l14 or l16	124	L20
L19	l7 and l18	47	L19
<i>DB=USPT,PGPB; PLUR=YES; OP=OR</i>			
L18	l1 or L17	7355	L18
L17	((361/704)!.CCLS. (419/27 419/28)!.CCLS. (148/679 148/680 148/684)!.CCLS. (or/)!.CCLS.)	2796	L17
<i>DB=USPT,PGPB,JPAB,EPAB,TDBD; PLUR=YES; OP=OR</i>			
L16	(5493153 5886269)![pn]	2	L16
L15	6271585[uref]	0	L15
L14	L13 not l11	93	L14
L13	roll\$ and L12	101	L13
L12	((molybdenum or mo) adj1 (powder or particle)) and (matrix or compact or composite) and (mpa or psi or "press-form" or "press-formed" or pressure) and ((copper or cu) same (molybdenum or mo))	268	L12
L11	l6 or l9	30	L11
L10	l8 or l9	21	L10
L9	L8 not l6	2	L9
L8	L7 and l1	21	L8

BEST AVAILABLE COPY

L7	((molybdenum or mo) adj1 (powder or particle)) and (matrix or compact or composite) and (mpa or psi or "press-form" or "press-formed" or pressure) and (copper or cu)	354	L7
L6	l3 or l4 or l5	28	L6
L5	(4158719 4299629 4594217 4604259 4752334 4885214 4894293 5152959)! [pn]	8	L5
L4	5292478[uref]	1	L4
L3	l1 and L2	19	L3
L2	((molybdenum or mo) adj1 (powder or particle)) and (compact or composite) and (mpa or psi or "press-form" or "press-formed" or pressure) and (copper or cu)	302	L2

DB=USPT,PGPB; PLUR=YES; OP=OR

L1	((29/875 29/17.2 29/dig31 29/17.3 29/527.7 29/530 29/dig32)!.CCLS. (427/431 427/432 427/436)!.CCLS. (419/8 419/23 419/42 419/68 419/69)!.CCLS. (228/262.7 228/262.6 228/116)!.CCLS. (75/429 75/646 75/651 75/652)!.CCLS. (148/514 148/536 148/553 148/554)!.CCLS. (or/)!.CCLS.)	4858	L1
----	---	------	----

ND OF SEARCH HISTORY

BEST AVAILABLE COPY

WEST

Generate Collection

Print

Search Results - Record(s) 1 through 2 of 2 returned.

☐ 1. Document ID: JP 59061948 A

L37: Entry 1 of 2

File: JPAB

Apr 9, 1984

PUB-NO: JP359061948A
DOCUMENT-IDENTIFIER: JP 59061948 A
TITLE: SEMICONDUCTOR PACKAGE

PUBN-DATE: April 9, 1984

INVENTOR-INFORMATION:

NAME COUNTRY
KOJIMA, HISATSUGU

ASSIGNEE-INFORMATION:

NAME COUNTRY
KYOCERA CORP

APPL-NO: JP57173770

APPL-DATE: September 30, 1982

US-CL-CURRENT: 257/E23.028

INT-CL (IPC): H01L 23/12; H01L 23/02

ABSTRACT:

PURPOSE: To prevent generation of crack and missing by forming a thermal conductive base material with a copper and molybdenum alloy having the composition ratio within the specific range.

CONSTITUTION: Composition of a copper-molybdenum alloy to be used for thermal conductive base material 1 is set such as the copper is 5 \pm 30wt% and molybdenum is 70 \pm 90wt%. For example, the molybdenum powder is pressurizingly molded, and a porous sintered molybdenum body baked under the reduction ambient is impregnated with the melted copper. At the inside of an insulating frame 2 fixed to the upper circumferential part of this thermal conductive base material 1, a conductive layer 4 is formed and the electrode of semiconductor element 3 is connected to the external lead terminal 5. The external lead terminal 5 is also provided with a wire 6 of which one end is connected to the electrode of semiconductor element 3. A cover 7 is loaded on the insulating frame 2 and the inside is hermetically sealed. Thereby, heat generated by semiconductor element is absorbed by a thermal conductive base material and is released to the open air. Moreover, since the thermal expansion coefficients of the thermal conductive material and insulating frame are approximated, crack and missing of insulating frame resulting from difference of thermal expansion coefficient are not generated and stable operation can be secured.

COPYRIGHT: (C)1984, JPO&Japio

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
------	-------	----------	-------	--------	----------------	------	-----------	-----------	-------------

KWIC	Draw Desc	Image
------	-----------	-------

☐ 2. Document ID: JP 59061948 A

L37: Entry 2 of 2

File: DWPI

Apr 9, 1984

DERWENT-ACC-NO: 1984-124572
DERWENT-WEEK: 198420
COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Semiconductor package - has heat sink consisting of copper-molybdenum alloy acting as good thermal conductor NoAbstract Dwg 1/1

PATENT-ASSIGNEE: KYOCERA CORP (KYOC)

PRIORITY-DATA: 1982JP-0173770 (September 30, 1982)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 59061948 A	April 9, 1984		004	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 59061948A	September 30, 1982	1982JP-0173770	

INT-CL (IPC): H01L 23/12

DERWENT-CLASS: U11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
------	-------	----------	-------	--------	----------------	------	-----------	-----------	-------------

KWIC	Draw Desc	Image
------	-----------	-------

Generate Collection

Print

Terms

Documents

jp-59061948-\$ did.

2

Display Format:

-

Change Format

[Previous Page](#)

[Next Page](#)

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 2 of 2 returned.**☐ 1. Document ID: JP 2000223632 A

L35: Entry 1 of 2

File: JPAB

Aug 11, 2000

PUB-NO: JP02000223632A

DOCUMENT-IDENTIFIER: JP 2000223632 A

TITLE: HEAT RADIATION SUBSTRATE AND MANUFACTURE THEREOF

PUBN-DATE: August 11, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
ARIKAWA, TADASHI	
ICHIDA, AKIRA	
DOI, YOSHIHIKO	
MACHIDA, TAKEO	
MURATA, TSUTOMU	

ASSIGNEE-INFORMATION:

NAME	COUNTRY
TOKYO TUNGSTEN CO LTD	
HODEN SEIMITSU KAKO KENKYUSHO LTD	

APPL-NO: JP11019299

APPL-DATE: January 28, 1999

INT-CL (IPC): H01 L 23/373; H01 L 23/34

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a heat radiation substrate having characteristics optimum for a semiconductor package, used for a cavity, and a method of manufacturing thereof.

SOLUTION: In a metal substrate on which elements or components of a semiconductor package are mounted, a cavity 1 is constituted that copper(Cu) powder is uniformly mixed with molybdenum(Mo) powder and the mixture is shaped and sintered, or molybdenum green compact is melted and impregnated with copper and is rolled to form a Cu-Mo composite board having the thickness of 1 mm or lower, and then the processed object is further worked to form a recessed (cavity) shape. This recess-shaped composite board 1a has the surface roughness of Ra

COPYRIGHT: (C) 2000, JPO

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
------	-------	----------	-------	--------	----------------	------	-----------	-----------	-------------

KWIC	Draw Desc	Image
------	-----------	-------

☐ 2. Document ID: JP 2000223632 A

L35: Entry 2 of 2

File: DWPI

Aug 11, 2000

DERWENT-ACC-NO: 2000-614809

DERWENT-WEEK: 200059
COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Heat sink substrate for mounting semiconductor package, has copper-molybdenum compound plate with specific surface roughness in cavity of metallic substrate

PATENT-ASSIGNEE: HODEN SEIMITSU KAKO KENKYUSHO KK (HODEN), TOKYO TUNGSTEN KK (TOLT)

PRIORITY-DATA: 1999JP-0019299 (January 28, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2000223632 A	August 11, 2000		006	H01L023/373

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP2000223632A	January 28, 1999	1999JP-0019299	

INT-CL (IPC): H01 L 23/34; H01 L 23/373

ABSTRACTED-PUB-NO: JP2000223632A

BASIC-ABSTRACT:

NOVELTY - IC chip (2) is mounted in a cavity (1a) of metallic substrate, which has Cu-Mo compound plate. The plate is formed by melting, rolling, sintering or impregnation of Cu and Mo powders of 1mm or less thickness. The surface roughness of the plate, at base of cavity is less than or equal to 0.2 μ m.

DETAILED DESCRIPTION - The substrate has thermal expansion coefficient of 7-11 multiply $10^{-6}/K$ and heat conductivity of 200W/mK. The substrate has Young's modulus of 180-300 GPa and Ericksen value of 2-8mm. An INDEPENDENT CLAIM is also included for heat dissipation substrate manufacturing method.

USE - For mounting CSP, BGA packages.

ADVANTAGE - Optimum heat release characteristic is secured by using suitable Cu-Mo compound substrate.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional view of semiconductor package.

Cavity 1a

IC chip 2

ABSTRACTED-PUB-NO: JP2000223632A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/4

DERWENT-CLASS: L03 M22 U11

CPI-CODES: L04-C21; L04-C25; M22-H03G;

EPI-CODES: U11-D01A5; U11-D02B1;



Generate Collection

Print

Terms	Documents
jp-2000223632-\$.did.	2

WEST

Generate Collection

Print

Search Results - Record(s) 1 through 2 of 2 returned.☐ 1. Document ID: JP 2000216278 A

L34: Entry 1 of 2

File: JPAB

Aug 4, 2000

PUB-NO: JP02000216278A

DOCUMENT-IDENTIFIER: JP 2000216278 A

TITLE: SEMICONDUCTOR PACKAGE AND MANUFACTURE OF HEAT RADIATING SUBSTRATE USING FOR THE SAME

PUBN-DATE: August 4, 2000

INVENTOR-INFORMATION:

NAME

COUNTRY

HIRAYAMA, NORIO

OSADA, MITSUO

ICHIDA, AKIRA

AMANO, YOSHINARI

ASAI, SEISHI

MAEZATO, HIDETOSHI

ARIKAWA, TADASHI

SAKIMAE, KENJI

ASSIGNEE-INFORMATION:

NAME

COUNTRY

TOKYO TUNGSTEN CO LTD

APPL-NO: JP11001772

APPL-DATE: January 7, 1999

INT-CL (IPC): H01 L 23/02; B21 B 3/00; B22 F 3/04; B22 F 3/26; C04 B 37/02; H01 L 23/08; H01 L 23/373

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a manufacturing method for a heat radiation substrate by a hydrostatic pressure molding method and to provide a microwave semiconductor package using the heat radiating substrate.

SOLUTION: Related to a semiconductor package, wherein a Cu-Mo heat radiation substrate is provided on the front and rear surfaces of an aluminum nitride, the plate thickness of the heat radiating substrate is smaller than 0.4 mm, and Mo pressed-powder is provided by a hydrostatic molding method, wherein the aggregate filled with Mo powder 7 is covered with a soft material such as a rubber medium 8, which is put in a pressure-resistant water vessel and applied with a hydrostatic pressure, and then Cu of 30-40% for mass ratio is placed on the pressed-powder for heating process, providing a Cu-Mo composite substrate where the Mo pressed-powder is impregnated with Cu, which is rolled.

COPYRIGHT: (C)2000, JP0

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
------	-------	----------	-------	--------	----------------	------	-----------	-----------	-------------

KVMC	Draw Desc	Image
------	-----------	-------

☐ 2. Document ID: DE 19906875 A1 JP 2000216278 A

L34: Entry 2 of 2

File: DWPI

May 18, 2000

DERWENT-ACC-NO: 2000-367084

DERWENT-WEEK: 200042

COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Semiconductor assembly, especially with microwave chips e.g. for a mobile telephone, has a thin heat radiating substrate formed by diffusion metallization of molten copper into a molybdenum pressing

INVENTOR: AMANO, Y; ARIKAWA, T ; ASAI, K ; HIRAYAMA, N ; ICHIDA, A ; MAESATO, H ; OSADA, M ; SAKIMAE, K

PATENT-ASSIGNEE: TOKYO TUNGSTEN KK (TOLT)

PRIORITY-DATA: 1999JP-0001772 (January 7, 1999), 1998JP-0325445 (November 16, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 19906875 A1	May 18, 2000		012	H01L023/14
<u>JP 2000216278 A</u>	August 4, 2000		008	H01L023/02

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 19906875A1	February 18, 1999	1999DE-1006875	
JP2000216278A	January 7, 1999	1999JP-0001772	

INT-CL (IPC): B21 B 3/00; B22 F 3/04; B22 F 3/26; B32 B 31/06; C04 B 37/02; H01 L 23/02; H01 L 23/08; H01 L 23/14; H01 L 23/373

ABSTRACTED-PUB-NO: DE 19906875A

BASIC-ABSTRACT:

NOVELTY - Semiconductor assembly, has a thin heat radiating substrate formed by diffusion metallization of molten copper into a molybdenum pressing.

DETAILED DESCRIPTION - A semiconductor assembly, with mounted chips, has a less than 0.4 mm thick heat radiating substrate of a copper - molybdenum (Cu-Mo) composite material formed by diffusion metallization of 30-40 wt.% copper in molten form into a molybdenum pressing.

INDEPENDENT CLAIMS are also included for the following:

(i) an isostatic pressing process for producing a pressing for forming a composite material for the above semiconductor assembly; and

(ii) a process for producing a heat radiating substrate for the above semiconductor assembly.

USE - Microwave or other power semiconductor chip assembly with a heat radiating substrate is useful in communications e.g. in mobile telephones.

ADVANTAGE - The heat radiating substrate has a thermal expansion coefficient of 7.7 - 9.0 multiply 10⁻⁶/K, a high thermal conductivity of 200 - 220 W/m.K, a Young's modulus of 220 - 230 GPa and a low density of not more than 9.8 g/cm³. The substrate which is produced by isostatic pressing is a low cost, thin substrate of precise shape.

DESCRIPTION OF DRAWING(S) - The figure shows a horizontal cross sectional view of isostatic pressing equipment useful for forming a heat radiating substrate according to the invention.

ABSTRACTED-PUB-NO: DE 19906875A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.2a/5